IT IS CLAIMED:

1.      A memory comprising:

a non-volatile data storage element capable of storing a first data state characterized by a negative threshold voltage and one or more second data states characterized by a positive threshold voltage; and

sense circuitry connectable to the data storage element that can distinguish the data state of the storage element, comprising;

a compensation circuit, whereby the parameter used by the sense circuit to distinguish between the first and second data states is compensated based on operating conditions.

2.      The memory of claim 1, wherein said operating conditions comprise temperature.

3.      The memory of claim 1, wherein said operating conditions comprise the voltage level of an external power supply.

4.      The memory of claim 1, wherein said data storage element is capable of storing a plurality of said second data states.

5.      The memory of claim 1, wherein said parameter is a voltage.

6.      The memory of claim 1, wherein said parameter is in a range of from 0 volts to 0.2 volts.

7.      The memory of claim 1, wherein said parameter is a current.

8.      The memory of claim 1, further comprising:

write circuitry connectable to the data storage element and the sense circuitry, wherein the sense circuitry is used for program verify and the verify level for the second data states is compensated based on operating conditions.

9.      The memory of claim 1, further comprising:

a negative voltage source; and

a band gap generator connectable to the negative voltage source whereby said parameter is provided.

10.    The memory of claim 9, wherein said parameter is a voltage and said band gap generator provides a voltage in the range of 0 volts to 0.2 volts.

11.    A method of operating a non-volatile memory, comprising:

selecting a data storage element storing one of a plurality of data states, said plurality of data states comprising a first data state characterized by a negative threshold voltage and one or more second data states characterized by a positive threshold voltage;

providing a sensing parameter, wherein said sensing parameter is compensated for operating conditions; and

using said sensing parameter to distinguish between the first data states and the second data states.

12.    The method of claim 11, wherein said plurality of data states comprises a plurality of second data states.

13.    The method of claim 11, wherein said operating conditions comprise temperature.

14.    The method of claim 11, wherein said operating conditions comprise the voltage level of an external power supply.

15.    The method of claim 11, wherein said sensing parameter is a voltage.

16.    The method of claim 15, wherein said sensing parameter is a voltage in the range of 0 volts to 0.2 volts.

17.    The method of claim 11, wherein said sensing parameter is a current.

18.    The method of claim 11, further comprising:

generating a negative voltage, wherein the sensing parameter is produced using said negative voltage.

19.    A non-volatile memory device, comprising:

means for storing a data value selected from a plurality of data states, a first of which is characterized by a negative threshold value and a second of which is characterized by a positive threshold value;

means for compensating a parameter for the operating conditions of the memory device; and

means for distinguishing between said first data state and said second data state by use of said compensated parameter.